

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in this application.

1. (Currently Amended) A method to produce uranium dioxide fuel in pellet shape for use in a light water reactor, comprising:

providing a porous uranium dioxide arrangement;  
infiltrating the porous uranium dioxide arrangement with a precursor liquid;  
curing the porous uranium dioxide arrangement with the infiltrated precursor liquid;  
and  
thermally firing the porous uranium dioxide arrangement, such that the precursor liquid is converted to a second phase.

2. (Original) The method according to claim 1, wherein the precursor liquid is allylhydridopolycarbosilane.

3. (Cancelled).

4. (Original) The method according to claim 1, wherein the second phase is a solid.

5. (Cancelled).

6. (Previously Presented) The method according to claim 1, wherein the curing of the arrangement is between 180 and 400 degrees centigrade.

7. (Previously Presented) The method according to claim 1, wherein the firing of the arrangement is between 850 degrees centigrade and 1700 degrees centigrade.

8. (Previously Presented) The method according to claim 7, wherein the firing of the arrangement is between 1500 degrees centigrade and 1700 degrees centigrade.

9. (Original) The method according to claim 1, wherein the arrangement is provided in pellet form.

10. (Previously Presented) The method according to claim 1, wherein the thermal firing of the porous uranium dioxide arrangement results in solid silicon carbide.

11. (Currently Amended) The method according to claim 1, wherein the method is repeated until a thermal conductivity of the fuel arrangement is increased at least 5% compared to that of a fuel arrangement formed from ~~pure~~ conventional uranium dioxide .
12. (Original) The method according to claim 1, wherein the infiltrating of the porous uranium dioxide arrangement with the precursor liquid results in incorporation of the precursor liquid into a center of the uranium dioxide arrangement
13. (Withdrawn) A nuclear fuel, comprising:  
an arrangement having a matrix of uranium dioxide; and  
silicon carbide interspersed in the matrix of uranium dioxide.
14. (Withdrawn) The nuclear fuel according the claim 13, wherein the arrangement is pellet shaped.
15. (Withdrawn) The nuclear fuel according to claim 13, wherein a total volume of the arrangement is comprised of up to 10% silicon carbide on a volumetric basis.
16. (Withdrawn) The nuclear fuel according to claim 15, wherein the silicon carbide is equally interspersed with the uranium dioxide.